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Agricultural Products, Moisture Content.

Moisture changes in some agricultural products due to atmospheric conditions. By W. R. Humphries and W. M. Hurst. Agricultural Engineering. v. 16, no. 1. January, 1935. p. 8-11, 12.

Agriculture.

Farm markets rapidly rise to pre-war levels. By F. B. Nichols. Printers' Ink. v. 168, no. 9. August 30, 1934. p. 25-30. Owners have been riding through high temperatures with less financial loss than they experienced during droughts of 1901 and 1913. Preliminary studies by economists in United States Department of Agriculture indicate that advances in values of rural products will far more than offset loss incurred in destruction of crops by drought. Agriculture at last is nearly free from market weight of its surplus crops and livestock. Farmers are moving up the financial trail to normal and potent position in commercial life of nation.

Outlook for agriculture in 1935. By Gilbert Gusler. Western Farm Life. v. 37, no. 1. January 15, 1935. p. 3, 8. Grounds for anticipating additional gains in year ahead can be found in following: 1. Domestic demand for farm products probably will average somewhat higher than in 1934. 2. Forces affecting general commodity price level appear to favor advance rather than decline. 3. Most of depressing crop surpluses carried from previous seasons, and excess in livestock population have been eliminated. 4. With better weather, production of those crops which were extremely small in 1934 may be closer to point likely to bring farmers maximum income. 5. Foreign demand for American farm products may be slightly less than in 1934, although difference seems likely to be small.

Promise comes with New Year. Implement and Tractor Trade Journal. v. 50, no. 1. January 12, 1935. p. 10-11. Natural forces combine to give industry its best background since inception of depression due principally to better economic position of agriculture.

Three steps to recovery in '35. By Henry A. Wallace. Bureau Farmer. v. 10, no. 5. January, 1935. p. 7-8, 10. One of major elements in restoration of agricultural parity is increase in purchasing power of industrial population. Second major element is reduction in prices of industrial producers that have advanced too far. When industrial production and payrolls are increased, industrial population is in position to buy more food at parity prices. When industrial prices are lowered, farmer is in position to buy more industrial goods with his money income. Thus, higher

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farm income and higher standard of food consumption for industrial population both turn on employment and purchasing power of industrial workers.

Air Conditioning.

Cold air from steam. Popular Mechanics. v. 62, no. 5. November, 1934. p. 690-692. Steam chilling is extremely practical where central power stations produce and convey steam to customers via underground pipes. Application of steam jet cooling to homes has not been carried on extensively, although it is practicable. Heating and cooling units are now made which use same boiler for both summer and winter air conditioning.

Control of oil fired air conditioning in model home is made for ease and comfort. Domestic Engineering. v. 145, no. 1. January, 1935. p.62-64.

Heating, cooling and air conditioning. American Architect. v. 144, no. 2624. July, 1934. p. 74, 100. Purpose of article and its reference data is: First, to provide sound background knowledge of methods of designing complete air conditioning systems of any size or character, to enable architect to collaborate effectively with consulting engineers and manufacturers of equipment; second, to provide simplified methods of selecting appropriate equipment for winter, summer or all-year air conditioning of residences, small stores or offices, and other normal projects that architect may have to undertake without employing counsel. Simple definitions of essential air conditioning terms.

Heating, piping and air conditioning's Directory of industrial and commercial air conditioning equipment. Heating, Piping and Air Conditioning. v. 7, no. 1. January, 1935. p. 57-80.

Principles and practices involved in controlled conditioning of air. By N.C. Ebaugh. Southern Power Journal. v. 53, no. 2. February, 1935. p. 33-36. Explains in simple, concise terms theories involved, beginning with psychrometric calculations.

Associations.

Agricultural Engineers meet. By Walter B. Jones. Farm Machinery and Equipment. v. no. December 15, 1934. p. 5-6, 27. Hear summary of farm survey favoring use of rubber tires on farm tractors. Other engineering developments discussed.

A.S.H. & V.E. forty-first annual meeting. Aerologist. v. 11, no. 1. January, 1935. p. 14-15.

Eighty-second annual meeting. New York, N.Y. January 16-19, 1935. Civil Engineering. v. 35, no. 1. January, 1935. p. 33-42. Program of sessions, entertainment and trips. American Society of Civil Engineers.

Building Construction.

Precautions in building design. By Elwyn E. Seelye. Civil Engineering. v. 5, no. 1. January, 1935. p. 15-18. Some safe rules of design may be summarized as follows: (1) Keep human equations of builder and inspector in mind. (2) Reinforce routine inspection by having designer oversee vital or complicated parts of work. (3) Keep designs down to plane of builders, fabricators and erectors. (4) Do not forget law that action and reaction are equal and opposite. (5) Remember that weakness in structure may not be obvious, and that responsible engineer must be constantly on alert. (6) Be sure to visualize structure completely.

Residential construction activity in United States. Federal Home Loan Bank Review. v. 1, no. 4. January, 1935. p. 111-118.

Some notes in general on construction of buildings. By T.A. Macadam. Journal of Agriculture of South Australia. v. 38, no. 1. August, 1934. p. 86-90. Continued from July issue.

Some notes in general on construction of buildings. By T.A. Macadam. Journal of Agriculture of South Australia. v. 37, no. 12. July 16, 1934. p. 1560-1566.

Corrosion.

Corrosion of metal fastenings in zinc-chloride-treated wood. By R.H. Baechler. Industrial and Engineering Chemistry. v. 26, no. 12. December, 1934. p. 1336-1338. At present stage of tests it appears that corrosion of wire nails in wood treated with zinc chloride and exposed to moderately humid interior or to outside conditions such as prevail at Madison, Wisconsin, is not appreciably greater than corrosion occuring in untreated wood, provided treated wood is seasoned before nails are driven. Nails driven into wet treated wood and exposed to foregoing conditions corrode rapidly during drying period. It seems inadvisable to use wire nails in zinc-chloride-treated wood that is to be exposed to very humid conditions. Corrosion of wire nails in wood treated with zinc chloride apparently is not modified greatly by painting wood or by adding sodium dichromate to treating solution. Corrosion of brass and galvanized iron fastenings in wood treated with zinc chloride is probably slight under all conditions of humidity.

Cotton and Cotton Ginning.

Consider Diesel power for oil mill and gins. By Orville Adams. Cotton and Cotton Oil News. v. 35, no. 51. December 22, 1934. p. 3-4.

Permanent plan for cotton growing industry applicable also to all farm and ranch products. By J.E. McDonald. Cotton and Cotton Oil News. v. 35, no. 45. November 10, 1934. p. 3-4. Principles and features of plan in brief: Establish production basis on each cotton farm. Annual proration. Parity price, as now provided for in A.A.A. on that portion domestically consumed. Unrestricted production leaving farm to be his own judge of amount of cotton he should produce for foreign markets.

Dams.

Stresses in cofferdams and similar structures. By J.C. Meem. Civil Engineering. v. 4, no. 12. December, 1934. p. 639-646. Determined by other than the Rankine formula.

Topuxtepec rock-fill dam. By H.E.M. Stevenson. Civil Engineering. v.4., no. 10. October, 1934. p. 524-528. Major flood-control and irrigation project in Southern Mexico.

Verde dam must be built, but to guard valley against shortage, not to bring new disaster. By H. J. Lawson. Arizona Producer. v. 13, no. 21. January 15, 1935. p. 6.

Diesel Engines.

Methods of using waste heat from Diesels. By Perry West. Heating, Piping & Air Conditioning. v. 7, no. 2. February, 1935. p. 97-100.

Drainage.

Wood veneer pipe for draining agricultural lands. By John G. Sutton. Agricultural Engineering. v. 16, no. 1. January, 1935. p. 12-13. Norwegian Experiment Station has been conducting work on production of drain pipes made of veneer of asp and fir for past eight or nine years. Norwegian director of agriculture allotted government funds to superintendent of experiment station to construct machine for manufacturing these pipes. Some installations of veneer pipe have been in service in Norway for as long as seven years, and have furnished satisfactory drainage.

Droughts.

Drought, weather and streamflow. By John C. Hoyt. Engineering News-Record. v. 114, no. 6. February 7, 1935. p. 199-200. Subnormal precipitation in early part of year caused severe drought conditions throughout arid and semi-arid regions and resulted in disastrous crop losses, while high summer temperatures, low groundwater levels and unprecedentedly low river discharges increased the difficulties of affected regions. Records dictate caution in further expansion of water use.

Midwest drough shows up in water levels of rivers. Science News Letter. v. 26, no. 695. p. 69. Gauge readings on Little Rock, Mississippi, and Red Rivers show lowest level ever recorded for July.

We went dry again. By E. V. Wilcox. Country Gentleman. v. 104, no.11. November, 1934. p. 13, 35-36. General picture of what has happened in fourteen or fifteen of the worst afflicted states, makes rough estimate of what we have left of year's crops and what effect this climatic raid on our national larder may exercise on nation's business for next few years.

Electricity in the Home.

Primer of electricity and heat. By Merna Myrtha Monroe. 1934. 287-321p. Maine. Agricultural Experiment Station. Bulletin no. 376.

Electricity on the Farm.

Night life of a chicken. By George W. Kable. Electricity on the Farm. v. 8, no. 1. January, 1935. p. 9-10.

More customers than ever. Electrical World. v. 105, no. 1. January 5, 1935. p. 45-46. Farm customers are only group revealing steady gain throughout depression. Total of 731,675 marks increase of 12.5 per cent over 1930, and grain during 1934 of about 18,000.

TVA and farm electrification. By David E. Lilienthal. Bureau Farmer. v. 10, no. 5, January, 1935. p. 10a-10b. There is no single thing we could do toward restoring American farm and American farm life to its proper and rightful place than to bring electricity to every one of farms in country.

Employment.

Finding work. By Samuel S. Board. Mechanical Engineering. v. 56, no.11. November, 1934. p. 662-670. Standard technique applied to the needs of engineers.

Engineering.

Engineering in foreign countries. Engineering News-Record. v. 114, no.5. January 31, 1935. p. 153-154. Accounts taken from foreign-language periodicals of important activities in engineering research, design and construction being carried on beyond the United States.

Etymology of some common engineering terms. By Richard S. Kirby. Civil Engineering. v. 4, no. 10. October, 1934. p. 529-532. Present usage traced from study of historic and linguistic background.

Erosion Control.

Major effort at erosion control. By H. H. Bennett. The Land Today and Tomorrow. v. 1, no. 1. October, 1934. p. 1-4, 20-21. Sets forth our common objective and need for real cooperation.

Many million acres ruined by erosion of soil. Popular Mechanics. v. 62, no. 5. November, 1934. p. 645. Seventy-five per cent of land in this country is subject to some degree of washing when used for cleaning tilled crops or severely over-grazed, and estimated 35,000,000 acres of land have been made essentially worthless by rainwash, and loss to this country occasioned by erosion is equivalent to 140,000 farms of 250 acres each.

Prevent erosion of soil by wind and water. By E.R. Parsons. Western Farm Life. v. 37, no. 1. January 15, 1935. p. 3, 6, 12.

Soil robbing must come to an end. By Loy E. Rast. Southern Cultivator. v. 93, no. 1. January 1, 1935. p. 3,5. American farmers lose $400,000,000 annually solely through soil erosion.

Stop gullies - save your farm. By Wilbur R. Matloon. 1934. 14p. U.S. Department of Agriculture. Farmers' Bulletin no. 1737.

Erosion Control. (Cont'd)

Stop soil blowing. By Raymond H. Gilkeson. Kansas Farmer. v. 72, no. 21. November 10, 1934. p. 3, 17.

Suggestive list of references on the United States soil erosion service and its work. Compiled by James T. Rubey. November 28, 1934. U.S. Geological Survey. Library. Bibliographical list no. 4. 3p. mimeographed.

Taming the tiger. By James C. Dorieux. Country Home. v. 59, no. 2. February, 1935. p. 9, 31, 34.

Farm Buildings and Equipment.

Big barn is problem for builders. By H. A. Heinbeck. American Builder and Building Age. v. 57, no. 2. February, 1935. p. 44-46. Gives layout and stall construction details of big barn for horses, cows and storage.

Report of Farm Structures Division Meeting. By K.J.T. Ekblaw. Agricultural Engineering. v. 16, no. 1. January, 1935. p. 33.

Farm Machinery and Equipment.

California farm machinery conference schedule for Davis, February 15. Implement Record. v. 32, no. 2. February, 1935. p. 14. University Division of agricultural engineering arranges meeting especially for dealers, service men and trade representatives. Gives program.

Exhibit of twenty years of farm machine progress. Agricultural Engineering. v. 16, no. 1. January, 1935. p. 19. Exhibit prepared by Agricultural Engineering Department of Iowa State College, portrays twenty years' progress in improvement of farm machinery.

Farm equipment situation. By E.V. Needham. Domestic Commerce. v.15, no. 1. January 10, 1935. p. 2. Conservative estimates place farm equipment production in 1934 in neighborhood of $170,000,000, which figure is unofficially about 50 per cent greater than production during 1933. It is estimated that output in 1935 will reach $250,000,000.

Farm machinery production sets pace in recovery. Implement and Tractor Trade Journal. v. 50, no. 2. January 26, 1935. p. 1, 10-11. Reports from industry's manufacturing centers during last ten days indicate that tractor and farm equipment production is setting pace for all industry in its percentage of increase over preceding years and in its strides towards recovery, being equaled only by automobile industry.

Low-cutting sled corn cutter. By O.K. Hedden. 1934. 10p. U.S. Department of Agriculture. Miscellaneous Publication no. 212.

Machinery division succeeds. Implement Record. v. 32, no. 2. February 1935. p. 35. Effective January 1, 1935, name of Machinery and Agricultural Implements Division of the Bureau of Foreign and Domestic

Farm Machinery and Equipment. (Cont'd)

Commerce, Washington, D.C., has been changed to Machinery Division. Change in name is merely one of convenience, and does not mean that activities of division have been in any way curtailed.

Report of Power and Machinery Division Meeting. By Walter B. Jones. Agricultural Engineering. v. 16, no. 1. January, 1935. p. 34-35.

Suggestions for an international regulation of agricultural machinery tests. Monthly bulletin of agricultural science and practice. v. 35, no. 12. December, 1934. p. 543-544. In order to gain an idea of possibilities of carrying out international comparisons of tests of agricultural machinery, it would be necessary to start by laying down most simple principles, and in first place to determine those general rules which must be observed in purely mechanical test. In this connection it is enough to mention differences already existing between French symbol C.V. and English symbol H.P. which do not correspond in any way. Taking these uniform rules as basis for mechanical tests, very valuable and comparable results could be obtained if at same time soil and climatic conditions of each test are stated. It might even be possible to establish certain definite groups of soil and climatic conditions in which test should be carried out, introducing certain interrelation between them. Results of test of economic efficiency for various machines would also be extremely important, but possibilities of comparing these yields will always be more or less limited, owing to restricted and variable bases necessary for their calculation. In addition, it must not be forgotten that new machines and methods, may require new methods of testing and of research.

Two decades in farm machinery. By William A. Haffert. New Jersey Farm and Garden. v. 6, no. 1. January, 1935. p. 6, 32. Electricity and tractor have been outstanding developments on the farm in past twenty years.

Fire Protection.

Up in smoke. By Hugh E. Curtis. Successful Farming. v. 33, no. 2. February, 1935. p. 42-44. Practical suggestions for fire prevention.

Flood Control.

San Gabriel River flood control. Engineering News-Record. v. 114, no. 4. January 24, 1935. p. 113-117. Review of decade of planning and construction work designed to control and conserve floods of San Gabriel River in southern California since establishing of Los Angeles County Flood Control District in 1924.

Flow of Water.

Expansion of Freeman method for solution of pipe flow problems. By W.E. Howland. Journal of New England Water Works Association. v. 48, no. 4. December, 1934. p. 408-411.

Flow of Water. (Cont'd)

Flow in bends of quarter-turn draft tubes. By C. A. Mockmore. Civil Engineering. v. 4, no. 9. September, 1934. p. 460. Abstract of paper read before joint session of irrigation and power divisions at Vancouver convention, July 12, 1934.

Flow net and the electric analogy. By E.W. Lane, F.B. Campbell and W. H. Price. Civil Engineering. v. 4, no. 10. October, 1934. p. 510-514. Devices used for studying moving water used by U.S. Bureau of Reclamation.

Flow of water around bends in pipes. By David L. Yarnell and Floyd A. Nagler. Proceedings American Society of Civil Engineers. v. 60, no. 6. August, 1934. p. 783-797. Experiments show: (1) That it is possible to have conditions such that resistance to flow may be very small or unusually large in same pipe bend carrying identical quantities of water; (2) that in standard 90 degree, 6-inch pipe bend, for same quantity of flow, with high velocity on inside, and low velocity exists on outside, and low velocity on inside, of tangent leading to bend; (3) that present formulas for computing loss of head due to bends appear to apply only to cases which approximately uniform velocity. - distribution exists in approach pipe; (4) that losses of head in bends experimented upon appear to vary as square of velocity, and not as 2.25 power as suggested by some writers; (5) that pipe bend may be as useful as any other device for measurement of discharge; (6) that direction of flow of secondary currents in pipe bends depends entirely upon velocity distribution in approach pipe; and (7) that same fundamental laws of flow through bends apply to both closed conduits and open channels.

Nomograph for flow of water in cast-iron pipes. By James R. Griffith. Civil Engineering. v. 4, no. 11. November, 1934. p. 601.

Greenhouses.

Greenhouses built for electric heat. Electrical World. v. 105, no.2. January 19, 1935. p. 61

Heating.

Domestic-stoker performance. By Thomas G. Estep and David C. Saylor. Mechanical Engineering. v. 56, no. 9. September, 1934. p. 547-549. Results of tests of domestic stoker installed in warm-air furnace using bituminous coal.

Hotbeds.

Electricity proves new aid in heating modern hotbeds. By L.W. Haynes. Purdue Agriculturist. v. 29, no. 4. January, 1935. p. 33, 38. Advantages: 1. Automatic and dependable control of heat independent of temperature changes. 2. Adjustment of heat to plant requirements without waste. 3. Temperature does not "wax and wane" and fall off after four or six weeks as in case in manure heated beds. 4. Electric heat is free from fumes. Pure air is obtained around bed. 5. Easily

Hotbeds. (Cont'd)

and quickly installed, whereas manure beds call for much work and time. 6. Low costs of installation. 7. Cost of operation is comparable with manure beds. 8. Heat is under absolute control, so that plants can be forced or retarded. 10. It is readily removed elsewhere.

Heating the soil with wires. By T.E. Hienton. Electricity on the Farm. v. 8, no. 1. January, 1935. p. 6-8. Conclusions: 1. Electric hotbed heating cable installed with lateral spacing of 14 or 18 inches, at depth of 6 inches below surface of soil, will not maintain soil temperature of 60 degrees F. when outside night temperature descends to 30 to 34 degrees F. with 1-inch frames and no insulation. 2. Air temperature of hotbeds heated with electric hotbed heating cable installed with lateral spacing of 7 to 18 inches, and at depth of 6 inches below surface of soil, is from 6 to 18 degrees F. lower than air temperature of beds heated by cable placed on surface of soil, or in both soil and air, or at depth of 3 inches in soil, when outside temperature is from 30 to 34 degrees F. 3. Kilowatt-hour consumption of electrically heated hotbeds is more dependent upon variations in air temperature, in beds, than on soil temperature. 4. Insulation of sides of frames, and mats placed on sash at night would considerably reduce energy consumption of beds heated by cable placed on surface of soil, or in both soil and air. 5. Cabbage and tomato plants will germinate in less time, and grow faster, in beds with cable installed on surface of soil, or both soil and air, or at depth of 3 inches below surface of soil than in beds with all of cable placed 6 inches below surface of soil. 6. Kilowatt-hour consumption per sash per day increases as depth in soil of cable decreases, with same lateral spacing of cable and no insulation beneath or around bed. 7. In considering lateral spacing and depth in soil of hotbed heating cable to be used, following items should be considered: a. Difference in operating temperatures desired and outside temperature. b. Condition of frames and kind of sash used. c. Method of insulation used, if any, to reduce heat loss. d. Relative importance of cost of producing plants, and time required.

Houses.

American desire for individually styled homes hinders pre-fabricated steel houses. Domestic Commerce. v. 15, no. 1. January 10, 1935. p.6. If American home owner would be satisfied with house to be exact counterpart of hundred others, problem of pre-fabricated steel home would be comparatively simple. Second difficulty, it developed, was difficulty of securing necessary labor. It will be necessary, in order to get labor cost of steel house on par with wooden houses, to develop new trade, that of steel carpenter.

Brief international bibliography of housing. By W. K. Oltar-Jevsky, in collaboration with Louis C. Stone. Pencil Points. v. 15, no. 8. August, 1934. p. 401-402.

Designing and building small home. By Galen F. Oman. Ohio Engineering Experiment Station News. v. 6, no.5. December, 1934. p. 13-15.

Houses. (Cont'd)

Examples from other lands. American Builder and Building Age. v. 57, no. 2. February, 1935. p. 38-39. Early English architecture.

Factory-built home hauled to site by truck. Popular Mechanics. v. 62, no. 5. November, 1934. p. 679. Houses are built in sections, and small cottage may be ordered and additional rooms can be added later, the planning and construction being such that extra room or rooms, already built, can be sent to house by truck and quickly attached. Homes are said to be termite-proof, storm-proof and resistant to earthquakes. Walls are six inches thick throughout; air-dried redwood is used for exterior walls, and chimney is reinforced with steel.

Farmers may benefit by National Housing Act. By Frank A. Briggs. Farm and Ranch. v. 53, no. 23. December 1, 1934. p. 2.

From thick to thin in building. Popular Mechanics. v. 62, no. 5. November, 1934. p. 682-685. You can now build house with plywood exterior that will be as weather-resisting as any other type of wood construction. In order to add even greater strength and durability to welded wood, manufacturers recently conceived idea of covering it with thin sheets of metal. In building industry plywood is now displacing thick boards in construction of concrete forms. Because it is highly water-resistant, one piece can be used from seven to ten times, besides saving from forty to seventy-five per cent of carpentry labor.

New path to prosperity. By John D.C. Weldon. Magazine of Wall Street. v. 55, no. 5. December 22, 1934. p. 254-255, 292. It is the idea behind the house that is significant. It is revolutionary change in method of building and selling houses that concerns us in this article because of almost certainly tremendous economic consequences it will ultimately have.

Houses, Remodeling.

Repair, replan, rebuild. Architectural Forum. v. 61, no. 2. August, 1934. p. 85-88. Check list.

Will finance home improvement. Washington Farmer. v. 60, no. 2. January 24, 1935. p. 5. Idea of Government in developing this program is twofold: (1) To enable farm families to repair, improve and modernize their homes with money under low interest rate, and with comparatively easy terms of repayment, and (2) To put private capital into use and thereby stimulate manufacture and distribution of materials and home equipment, thus creating employment and increasing industrial activity generally, which in turn is expected to increase public buying power and stimulate markets for farm produce.

Hydraulics.

Analytical approach to experimental hydraulics. Civil Engineering. v. 4, no. 11. November, 1934. p. 563-568. Brief resume of mathematical relationships between similar systems of flow.

Field-testing devices for hydraulic fills. By E. A. Rowe. Engineering News-Record. v. 114, no. 5. January 31, 1935. p. 150-152. Simple field apparatus used on El Capitan dam, San Diego, California, included tool for sampling core, balance for determining water content and voids and apparatus for screen analysis.

Hydraulic laboratory results and their verification in nature. By Herbert D. Vogel. Proceedings of American Society of Civil Engineers. v. 61, no. 1. January, 1935. p. 47-73. Discusses in general principles of verification of hydraulic model results, presents number of concrete examples, and opens way for subsequent discussion.

Insulation.

Insulation made of fine sand. Popular Mechanics. v. 62, no. 5. November, 1934. p. 705. Fine network of purest sand, interlocked with air, and extremely light in weight. Insulating power is estimated at 10 per cent more than that of still air, and almost double that of many commercial heat insulators. Material withstands temperature of 1500 degrees Fahrenheit. Is intended for use in refrigerators, electric ovens and furnaces.

What the insulants have contributed. Refrigerating Engineering. v. 28, no. 6. December, 1934. p. 313-314. Different insulants are discussed as to history, source, and extent of commercial application.

Irrigation.

Alfalfa responds to water. Oregon Farmer. v. 57, no. 25. December 13, 1934. p. 10. Experiments show results of irrigation.

Casper-Alcova irrigation project held legally unsafe. Engineering News-Record. v. 114, no. 4. January 24, 1935. p. 138, 143.

Central Valley project of California. By Edward Hyatt. Civil Engineering. v. 4, no. 9. September, 1934. p. 482-486. Approved method of combatting aridity and salt-water encroachment, and of improving navigation

Learns how to use water. Oregon Farmer. v. 57, no. 25. December 13, 1934. p. 2. Low-cost pasture irrigation pays good dividends.

Models aid in designing irrigation wasteway. By Wilbur R. Barrows and A.W. Newcomer. Civil Engineering. v. 4, no. 11. November, 1934. p. 595-598. Another example of use of models in development of irrigation structures for a New Mexico irrigation project is explained.

Self-irrigation lessons from the drouth. By E.C. Hilborn. Dakota-Farmer. v. 54, no. 25. December 8, 1934. p. 1, 497.

Lubrication.

Lubrication as affected by physical properties of lubricants. By Robert C. Williams. Industrial and Engineering Chemistry. v. 27, no.1. January, 1935. p. 64-66.

Lubrication of wire rope and chains. Contractors and Engineers Monthly. v. 29, no. 6. December, 1934. p. 23-24, 39

Miscellaneous.

Humanizing of science. By Harvey Cushing. Science. v. 81, no. 2093. February 8, 1935. p. 137-143.

Report of the Chief of Engineers. U.S. Army, 1934. Part 2, Commercial statistics. Washington, U.S. Government Printing Office, 1934. 1095p.

Social sciences and national planning. By Wesley C. Mitchell. Science. v. 81, no. 2090. January 18, 1935. p. 55-62.

Models

Dimensional analysis in model studies. By Ralph W. Powell. Civil Engineering. v. 4, no. 11. November, 1934. p. 568-571.

Model research on spillway crests. By Hunter House and Lincoln Reid. Civil Engineering. v. 5, no. 1. p. 10-14. Study of pressure distribution, and of discharge as function of crest design.

Sand mixtures and sand movement in fluvial models. Discussion by Lorenz G. Straud. Proceedings of American Society of Civil Engineers. v. 61, no. 1. January, 1935. p. 101-107.

National Resources Board.

Reports on mapping, land use and minerals released by National Resources Board. Engineering News-Record. v. 114, no. 3. January 17, 1935. p. 108, no. 111. Recent sections released included Part V, Report of Board of Surveys and Maps; Part II, Report of Land Planning Committee, Part IV, Report of Planning Committee for Mineral Policy.

Resources study begun. By Charles W. Eliot, 2nd. Engineering News-Record. v. 114, no. 6. February 7, 1935. p. 220-221. National Resources Board begins taking inventory of land, water and mineral resources of the nation as the groundwork of plan for their logical and coordinated development and use. Initial report outlines some general policies that should be adopted.

Scientists cooperate with Government through S.A.B. By Karl T. Compton. Science News Letter. v. 26, no. 716. December 29, 1934. p. 405. While details of report can only be made public subject to release by President, there is no impropriety in disclosing general scope of subjects which have engaged study of Board and its committees. Important among these subjects have been program of U.S. Weather Bureau, with particular reference to methods of weather forecasting and cooperation

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of other governmental services; cooperation with committee on railroad presidents to determine fundamental aspects of policy and organization, for insuring to railroads the best contributions from modern science; questions of organization and program in U.S. Geological Survey and U.S. Bureau of Mines, with particular reference to need for more adequate handling of mineral statistical information; re-definition of functions of U.S. Bureau of Standards, with detailed consideration of its program and needs and particularly its method of cooperation with industry in establishment of trade and commercial standards; study of surveying and mapping activities of government distributed through 28 government bureaus, with particular consideration of efficiency in mapping and efficient service of mapping agencies to organizations which need maps for their operation; formulation of scientific basis for studies and administration of problems of land use, including soil erosion; preliminary studies of chemical services of government, and also of certain features of program for stimulation of new and preferably non-competitive industries.

Paints and Painting.

Painting characteristics of hardwood. By F.L. Browne. Industrial and Engineering Chemistry. v. 27, no. 1. January, 1935. p. 42-47. Pure white lead and lead and zinc paint were applied by methods customary in house painting, as well as an enamel finish of kind often used on hardwoods. Results indicate that specific gravity of wood and size of pores are most important properties of hardwoods affecting painting. Comparative behavior of paint on hardwoods with large pores, on hardwoods with small pores, and on softwoods is duscussed.

Priming coat reductions for painting new wood surfaces. Oil, Paint and Drug Reporter. v. 126, no. 22. November 14, 1934. p. 74-75. Principal object of this study is to discover optimum priming-coat reduction in applying common house paints to soft-woods, and to determine whether priming coat should be reduced differently, according to nature of softwood painted.

Poultry Houses and Equipment.

Poultry houses and fixtures. By M. A. Jull and A.R. Lee. 1934. 34p. U.S. Department of Agriculture. Farmers' Bulletin no. 1554.

Power Projects.

National power program urged by Mississippi Valley committee. Electrical World. v. 105, no. 1. January 5, 1935. p. 70. Mississippi Valley committee, a subdivision of National Resources Board, recommends to President and Public Works Administrator Ickes, a $1,000,000,000 twenty-year program with 500 dams to harness river and its tributaries for power, flood control, sanitation, erosion, recreation and agricultural rehabilitation. Prominent in report is insistence that full governmental control of interconnection system must prevail.

Power Projects. (Cont'd)

$700,000,000 for Federal Power. Electrical World. v. 105, no. 1. January 5, 1935. p. 48-49. Aside from P.W.A. loans to municipalities, broad generalization may be made that all this expenditure can be challenged as unnecessary and wasteful so far as it is based upon economics of water supply or available power market.

Public Works.

P.W.A. has allotted $6,000,000 to Federal mapping agencies. Engineering News-Record. v. 114, no. 4. January 24, 1935. p. 120. Includes inventorying natural resources of country. Government offices engaged in this work include Forest Service, Bureau of Air Commerce, Coast and Geodetic Survey, Soil Erosion Service, Geological Survey and General Land Office. PWA allotment of $200,000 to Soil Erosion Service is being used in making map which will show extent and degree of soil erosion, degree of slope, dominant soil types, and land-use practices of every county of country. Task of surveying and mapping planting areas in national forests is being done by men employed by Forest Service. PWA made available to Geological Survey $2,400,000 for topographic mapping and accumulation of information on surface-water resources in public land states. For about 125 years surveys have been in progress on public domain under supervision of General Land Office. These surveys differ from those carried on by other governmental agencies because they form basis for acquisition of title to public lands. To complete series of airway maps being compiled by Bureau of Air Commerce, $509,000 has been allotted by PWA. These maps are intended to show beacon lights, airports and radio stations. Land elevations are clearly indicated. An allotment from PWA is enabling Coast and Geodetic Survey to carry forward important work in modernizing its charts. Work includes: (1) surveys of intracoastal waterways, correcting errors in charts, many of which have not been revised since Civil War; (2) surveys of ports and harbors along Pacific and Atlantic coasts, and revision of anchorage charts; (3) offshore hydrographic surveys of continental shelf, using echo soundings for determining depths.

Work relief bill for $4,000,000,000 before the House. Engineering News-Record. v. 114, no. 4. January 24, 1935. p. 138, 143. Contains provisions which would grant wide powers to President for handling this fund, for reorganization of Federal agencies, extension of life of various emergency units, and development of new plans for work projects. Specifically refers to slum clearance, rural housing, rural electrification, reforestation, [illegible] soil erosion, blighted area and submarginal land reclamation, improvement of existing road systems and construction of national highways, grade crossing elimination, CCC work, and "other useful federal or non-federal work." Broad objectives of measure are "to protect and to promote general welfare by: (1) providing relief from hardships attributable to wide-spread unemployment and conditions resulting therefrom, (2) relieving economic maladjustments, (3) alleviating distress and/or (4) improving living and working conditions.

Pumps and Pumping.

Influence of suction head and characteristics of fluid on output of centrifugal pumps. Mechanical Engineering. v. 56, no. 11. p. 689-692. Author points out that pumps which work well on test stand at manufacturer's plant do not perform equally well under certain service conditions hitherto unspecified or incompletely specified. He ascribed this to defects in methods of testing, which, according to his ideas, do not duplicate actual conditions. In tests suction head remains constant and usual arrangement for testing is to set pump directly or nearly directly over water tank. Author claims that this method of testing is wrong and that for estimating output capacity of centrifugal pumps it is necessary to consider suction head as well as total delivery head. He gives curves which show how output of pumps falls off with increase of suction head, and claims that this feature of behavior of centrifugal pumps has not been sufficiently appreciated in actual practice.

Rain and Rainfall.

On the relation between rainfall and stream flow. By Richard T. Zoch. Monthly Weather Review. v. 62, no. 9. September, 1934. p. 315-322. Treats simple case in which drainage area is rectangular; evaporation and transpiration are neglected; rate of rainfall, velocity of water in stream, and condition (dryness) of soil are constant; and where no snow cover is present.

Rains become bolder. Science News Letter. v. 26, no. 714. December 15, 1934. p. 373. Diagrammatic map shows why Corn Belt had deadly drought last summer, but has been receiving saving rains this fall.

Reclamation.

Methods and cost of filling for highway over swamps. By J.W. Cushing and O.L. Sokstad. Engineering News-Record. v. 114, no. 4. January 24, 1935. p. 126-129. Details of practice: 1. Deep grubbing. (2) Practical excavation for secondary roads. 3. Full cut through shallow swamps. 4. Partial excavation and surcharge. 5. Side excavations on old locations. (6) Construction over marl. (7) Rebuilding over deep swamp.

Reclamation policy held sound in Committee report. Engineering News-Record. v. 114, no. 5. January 31, 1935. p. 167-169. Recommends collection of repayments by bank system, planning based on stream-system development, federal control of storage, and adoption of uniform power policy for future program of irrigation in arid West.

Reforestation.

Can trees reclaim weather? By L. R. Waldron. Country Gentleman. v. 104, no. 11. November, 1934. p. 14-15, 37-39.

Forests are huge work reservoir. Wisconsin Agriculturist and Farmer. v. 62, no. 1. January 5, 1935. p. 3. Work in reforesting and related projects is characterized as essentially investment, which will return dividends in real values through improvement in fire protection, improvement of timber stands, checking of erosion and rehabilitation of non-productive lands.

Reforestation. (Cont'd)

Trees that can take it. By F. E. Charles. Successful Farming. v. 33, no. 2. February, 1935. p. 10-11, 50-51, 56. Suggested groups of trees that will fill out shelterbelts, turn back biting winds, and fight against recurring tragedies of drought and dust.

Refrigeration.

Dairy dollars saved by good cream. Arkansas Farmer. v. 37, no. 20. February 1, 1935. p. 1, 5. How to build practical cooling tank for properly keeping cream on the farm.

Simple ice box cures pork. By A.B. Bryan. Southern Agriculturist. v. 64, no 12. December, 1934. p. 11.

30-year index to A.S.R.E. transactions. Refrigerating Engineering. v. 28, no. 6. December, 1934. p. 331-354. Index gives by title and author printed papers read in National and Sectional meetings of American Society of Refrigerating Engineers from December, 1905, to November, 1934, with the addition of leading papers presented for publication in Refrigerating Engineering but not read at a meeting. Items related to news, reviews and committee activities are not indexed.

What the refrigerants have contributed. Refrigerating Engineering. v. 28, no. 6. December, 1934. p. 305-312. Extent of use, history and sources of common media.

Rivers.

Developing the Delaware River. By Mason J. Young. Civil Engineering. v. 4, no. 8. August, 1934. p. 408-412. Resume of War Department's report on utilization of its waters.

Rope.

Durability of hoisting rope. By Jocob feld. Civil Engineering. v.4, no. 12. December, 1934. p. 647-648. Discussion of length of life to be expected, and factor of safety.

Run-off.

Nomographic solution of rational run-off formula. By Garrett B. Drummond. Agricultural Engineering. v. 16, no. 1. January, 1935. p. 13.

Seepage.

Secutiry from under-seepage masonry dams on earth foundations. By E.W. Lane. Proceedings American Society of Civil Engineers. v. 60, no.7. September, 1934. p. 929-966. Gives results of investigation of more than two hundred masonry dams with various kinds of earth foundation, to determine length of percolation path necessary to prevent failure from under-seepage or piping. Based on this study, new method of analysis of such structures has been developed, which generally permits use of smaller seepage distances than are ordinarily considered to be safe.

Seepage. (Cont'd)

Security from under-seepage masonry dams on earth foundations. Discussion by Joel D. Justin and Louis E. Ayres. Proceedings of American Society of Civil Engineers. v. 61, no. 1. January, 1935. p. 110-114.

Uplift and seepage under dams on sand. By L. F. Harza. Proceedings American Society of Civil Engineers. v. 60, no. 7. September, 1934. p. 967-1000. Basic principles of flow under dams on sand are presented briefly in paper. Analytical methods applicable to some familiar types of foundations, and graphical and electric analogy methods of general application are described, by which can be determined theoretical laws governing: (1) Hydrostatic pressure along foundation contact; (2) Hydraulic gradient with which water escapes upward at toe; and (3) approximate leakage under structure.

Uplift and seepage under dams on sand. Discussion by Joel D. Justin and Charles Terzaghi. Proceedings of American Society of Civil Engineers. v. 61, no. 1. January, 1935. p. 115-122.

Sewage, Utilization of.

Salvage of sewage studied. By A. M. Rawn. Civil Engineering. v. 4, no. 9. September, 1934. p. 471-472. Report of Joint Committee of Sanitary Engineering and Irrigation Divisions.

Snow.

Snow survey as an index to summer precipitation. By O.W. Monson. Monthly Weather Review. v. 62, no. 9. September, 1934. p. 322-330. Definite conclusions cannot be drawn from this brief examination of precipitation and run-off records. More thorough study may reveal contradictory results, or again it may give further support to opinions which seem justified from analysis of available data. One thing is conclusive, which is that precipitation and run-off records are extremely valuable if kept consistently and continuously, and that more are needed. Run-off records should be kept on all streams where they emerge from mountains, and at other key points along their courses. Meteorological data taken at high altitudes and so distributed as to be representative of large areas are also needed.

Soils.

Methods of fixation and porosity determination in study of soil mechanics. By N.F. Miscenko. Agricultural Engineering. v. 16, no. 1. January, 1935. p. 23-29. Sets forth fundamental concept of engineering problems involved in soil tillage.

Soil survey begins with map. By L.C. Wheeting. Washington Farmer. v. 70, no. 1. January 10, 1935. p.5. Basic accurate picture of landscape features essential as starting point.

Solar Heaters.

Sun effect and design of solar heaters. By Harold L. Alt. Heating, Piping and Air Conditioning. v. 7, no. 2. February, 1935. p. 111-118. Gives analysis of factors entering into use of sun heat for warming domestic hot water.

Statistics.

Statistical abstract of the United States, 1934. U.S. Bureau of foreign and domestic commerce. 1934. 791p.

Stream Flow.

An approach to determinate stream flow. Discussion by Gordon R. Williams, W.G. Hoyt, L. L. Harrold and F.F. Snyder. Proceedings of American Society of Civil Engineers. v. 61, no. 1. January, 1935. p. 82-88.

Sugar Beets.

Superphosphate fertilization of superbeets. By Charles Price. Facts about Sugar. v. 29, no. 10. October, 1934. p. 357-358. Superiority of drilling with seed over broadcast application confirmed in new field trials in California.

Temperature.

Thermometers - dependable devices for measurement of temperature. Southern Power Journal. v. 53, no. 2. February, 1935. p. 55-62.

Terracing.

Development of terrace building machine. By J.C. Wooley. Agricultural Engineering. v. 16, no. 1. January, 1935. p. 4-5.

New type of terracing machine. By E.V. Collins, W.C. Ayres, and L.W. Johnson. Agricultural Engineering. v. 16, no. 1. January, 1935. p. 6-7. Important features of this machine may be enumerated as follows: 1. One-man operation. 2. Can be used wherever plow can operate. 3. No adjustments necessary for curves in terracing line. 4. Soil is pulverized so it settles in compact ridge without large air pockets and is left as good seedbed. 5. Capacity compares favorable with other machines used in terrace construction. 6. Small size of unit and high speed make it especially mobile. 7. In addition to building terraces, machine is well adapted to filling small gullies, and to construction of open ditches and terrace-outlet channels.

Strip-cropping and its relation to farm terracing. By Ernest Carnes. The Land Today and Tomorrow. v. 1, no. 1. October, 1934. p. 9-10.

Terrace making and maintenance. Farm Machinery and Equipment. no. 1813. January 15, 1935. p. 18. Prevention of soil erosion in hands of individual farmer.

Variable field requirements of terracing equipment. By Leonard J. Fletcher. Agricultural Engineering. v. 16, no. 1. January, 1935. p.5.

Requirements of terracing machine. By Ralph W. Baird. Agricultural Engineering. v. 16, no. 1. January, 1935. p. 3-4.

Tires.

Farmers O.K. rubber tires. By Walter B. Jones. Better Farm Equipment and Methods. v. 7, no. December-January, 1935. p. 4-5. Survey by University of Nebraska proves many advantages in actual farm use.

Riding on rubber. By J.B. Davidson. Northwest Farm Equipment Journal. v. 49, no. 1. January, 1935. p. 24-25.

Tractors.

Effects of diameter on performance of tractor drivenwheels. By O.E. Eggen. Agricultural Engineering. v. 16, no. 1. January, 1935. p. 30. Discussion of paper of same title by E.G. McKibben appearing on page 419 of December number of Agricultural Engineering.

Vegetable seeder and cultivator one-plow tractor. By D.C. Sprague. Agricultural Engineering. v. 16, no. 1. January, 1935. p. 20-22.

Ventilation.

Experiments with ventilating cowls. By Chr. Nockkentved. Agricultural Engineering. v. 16, no. 1. January, 1935. p. 14-19. Carried out at Research Laboratory for Building Structures at Royal College of Science, Copenhagen. Experiments mentioned in this paper were undertaken on promptings of several quarters, and as part of more elaborate investigation of pressure distribution on building freely exposed to wind.

Laboratory study of minimum ventilation requirements; ventilation box experiments. By W. H. Lehmberg, A. D. Brandt and Kenneth Morse. Heating, Piping and Air Conditioning. v. 7, no. 1. January, 1935. p. 44-47. Paper is result of research conducted at Harvard University, School of Public Health, in cooperation with Research Laboratory of American Society of Heating and Ventilating Engineers.

Walls.

How mortars contribute to dry walls. By L.A. Palmer. Architectural Record. v. 76, no. 5. November, 1934. p. 377-384.

Reinforced hollow tile proposed for building walls. By R.E. Rubins. Civil Engineering. v. 4, no. 11. November, 1934. p. 599-601. Advantages are as follows: 1. Permits building of fireproof walls for dwellings and small buildings at a cost at present considerably below that of tile or brick, comparable with that of cement block, and not much more than that of lumber. 2. It can cut weight of exterior curtain walls in stone or brick-faced buildings practically in half and at same time give considerable more rigidity. 3. In any type of structure, it should have less tendency to show shrinkage or settlement cracks than plain brick, block, or tile masonry.

Water Supply.

Changes in lake levels in Great Basin area. By S.T. Harding. Civil Engineering. v. 5, no. 2. February, 1935. p. 87-90. Based on lake levels, about 100 years of actual historic record are available, but Professor Harding has projected this record backward for another 200 years by study of trees and stumps around margins of lakes. In study of 300 years of lake level history thus derived, he finds no cyclic variations which justify projection into future, but he definitely concludes that dryness of period since 1917 has been exceeded prior to that time; and that water supply plans should be based on meeting demands during periods having run-off similar to that for period since 1917, as it is to be expected that such periods will recur in that region in future.

Farm water supply. By F.L. Touton. Southern Agriculturist. v. 65, no. 1. January, 1935. p. 8. Tells how a farm water supply may be assured.

Farm water supply. By C.P. Wagner. Northwest Farm Equipment Journal. v. 49, no. 1. January, 1935. p. 27.

Inventory of water resources: Editorial. Engineering News-Record v. 114, no. 4. January 24, 1935. p. 137. With Federal responsibility rapidly growing, and with factural study of water resources in scattered and uncoordinated condition, time has come when well-centered and coordinated agency of water study is essential to continuing progress. Work of National Resources Board in assembling basic record of fact makes apparent immediate necessity of some centralization of this kind, for without it there can be no continuity in collecting and analyzing observation data, and present inventory must soon suffer depreciation through obsolescence.

National inventory of water resources offered by Committee. Engineering News-Record. v. 114, no. 4. January 24, 1935. p. 140. Federal participation with States in carrying out unified policy with regard to control and development of water resources of country is urged by Water Planning Committee in its report to National Resources Board. To accomplish major objectives of nation in regard to water, which include development of more productive uses, and correction of conditions resulting from harmful effects or abuses of water resources, committee recommends that five different lines of action be undertaken, as follows: 1. Furtherance of surveys, inventories and records of conditions fundamental to use and control of water resources; 2. Study of federal and state legislation needed to bring about cooperation between various governmental agencies; 3. Studies and experiments in directive and administrative planning in selected unit areas; 4. Detailed study of representative projects on drainage area basis, similar to study given Tennessee Valley; 5. Creation of an advisory planning agency for coordinating use and control of water resources.

Water resources inventory presented by federal body. Engineering News-Record. v. 114, no. 5. January 31, 1935. p. 169-173. Water planning committee, in its report to National Resources Board, presents

Water Supply. (Cont'd)

coordinated basic data for nation on water resources, the uses that are now made of them and the abuses to which they are subject. Advisory planning agency recommended.

Water System.

How to use estimate tables to find water needs. By B. L. Mathews. Domestic Engineering. v. 145, no. 1. January, 1935. p. 43-44, 134. Practical example worked out for installation in home.

Water Troughs.

Fermenting straw keeps water in tank from freezing. Popular Mechanics. v. 62, no. 5. November, 1934. p. 791. 17 or 18-ft. length of $1\frac{1}{2}$ inch pipe is bent to U-shape about 1 foot wide, depending on height of water level maintained in tank, and is installed in one side of tank. For efficient operation it is necessary that water level in tank be kept above upper end of pipe at all times. After installing pipe, cover it 2 or 3 feet deep with straw-and-manure mixture, extending latter around sides of tank. Also put wood cover over tank and cover it with mixture, leaving drinking hole at one end. Hinged lid, preferable one that is insulated to keep out cold air, should be put over hole.

Weather.

New tricks of weather forecasting. Popular Mechanics. v. 62, no. 5. November, 1934. p. 706-708, 116A, 134A.

Welding.

Arc welding by the metallic electrode process. Canadian Engineer. v. 67, no. 25. December 18, 1934. p. 9-11. Advantages of using heavy coated electrodes. Molten metal is protected from injurious effect of contact with air while passing from electrode to work.

Windows.

Automatic window closer works when it rains. Popular Mechanics. v. 62, no. 5. November, 1934. p. 604. When device is set, with window raised, piece of soft lump sugar is inserted as cartridge. Drops of rain quickly disintegrate sugar cartridge, causing catch to release window, which closes by gravity. Special arrangement of window ropes keeps window from banging shut and perhaps breaking the glass. Device is easily attached, requiring no change in window or window weights.